

SHORELINE INVENTORY & CHARACTERIZATION SUMMARY REPORT

**TOWN OF ROCKFORD
SPOKANE COUNTY, WASHINGTON**

May 2021

Prepared for:

**Town of Rockford, WA
20 West Emma Street
Rockford, Washington 99030**

Prepared by:

URS

920 N. Argonne Road
Suite 300
Spokane Valley, WA 98212
Project No. 36310146

and

J-U-B Engineers, Inc.
W 422 Riverside Avenue
Suite 304
Spokane, WA 99201

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	PURPOSE OF THIS SHORELINE INVENTORY & CHARACTERIZATION SUMMARY.....	1
1.2	SMA JURISDICTION WITHIN ROCKFORD.....	2
2.0	LITERATURE REVIEW	2
2.1	SPOKANE COUNTY SHORELINE INVENTORY REPORT.....	2
2.2	HANGMAN CREEK TMDL	3
3.0	LOCAL CHARACTERIZATION	
3.1	FIELD OBSERVATIONS	5
4.0	REFERENCES	6

FIGURES

Figure 1: Area Map

Figure 4-A: Town of Rockford Shoreline Inventory (North)

Figure 4-B : Town of Rockford Shoreline Inventory (South)

APPENDICES:

Appendix A: Shoreline Photographs

INTRODUCTION

1.1 PURPOSE OF THIS SHORELINE INVENTORY & CHARACTERIZATION SUMMARY

Under the Washington State Shoreline Management Act (SMA), each local jurisdiction with "shorelines of the state" must adopt a Shoreline Master Program (SMP) that is based on state laws and rules but tailored to the specific geographic, economic and environmental needs of the community. The Town of Rockford is in the process of updating their Shoreline Master Program (SMP). This SMP provides a land use plan that coordinates development along the shoreline of Rock Creek in Rockford. This stream is under jurisdiction of the SMA.

A shoreline inventory and subsequent characterization report provides the basis of a SMP update. The inventory and characterization report provides information about the existing nature of areas along the banks of waterways under the jurisdiction of the SMA. It documents areas that are currently developed or are likely to become developed. It also rates the condition of the ecosystem functions and processes along each stream to determine the overall stream health within each jurisdiction. This information is intended to be synthesized into the updated SMP, which includes environmental designations, regulations, and a restoration plan. This SMP should be able to demonstrate how shoreline development, recreation, and access improvements can be balanced with conservation, and restoration measures that, together, maintain or improve the overall integrity and ecological functions of the State's waterways.

During the scoping process conducted between the Town of Rockford and the Washington State Department of Ecology (Ecology), it was decided that shoreline inventory efforts conducted for the Spokane County SMP update provide sufficient information to support the Town of Rockford's individual SMP update. However, because the County's shoreline inventory efforts covered large areas, they are not specific to the Town of Rockford. Therefore, the purpose of this summary report is three-fold:

- 1) To gather the relevant data from primary shoreline/stream reports that were conducted over large portions of Spokane County and present that data herein to more readily facilitate the SMP update process. This data is summarized in Sections 2.1 and 2.2.
- 2) Refine the physical boundary of the streams through the town to establish an accurate map of lands within the town of Rockford that is under the jurisdiction of the SMP. The refined stream boundaries and associated shoreline jurisdiction areas are shown on Figures 4-A and 4-B.
- 3) To incorporate additional detail gathered from site visits made to each town in September, 2012 by a team of two biologists, an engineer, and a planner. This information is provided in Section 3 of this report.

1.2 SMA JURISDICTION WITHIN ROCKFORD

Under the SMA, all lands within 200 horizontal feet of the ordinary high water line (OHWL) (legal boundary) of Rock Creek within the Town of Rockford is under the jurisdiction of the SMP. The OHWL is defined by the marking upon the shoreline created by regular seasonal high water events that occur at least once every 1.5 years (Olsen and Stockdale 2010). The OHWL is not defined by infrequent flood events. Within the town of Rockford, the SMA jurisdiction includes riparian natural areas, wetlands, agricultural areas, residential areas, and commercial/industrial areas.

LITERATURE REVIEW

2.1 SPOKANE COUNTY SHORELINE INVENTORY REPORT

The Landau and Associates Spokane County Shoreline Master Program Update Report, dated July 6, 2005, categorized the Rock Creek ecosystems. The update report is based largely on The Spokane County Proper Functioning Condition (PFC) Stream Inventory and Assessment Report, which was finalized in June 2005 by the Spokane County Conservation District (SCCD - later renamed as the Spokane Conservation District). The PFC report provided an inventory and assessment of the physical (hydrological) and ecological condition of streams and rivers throughout the county that fall under the jurisdiction of the SMA. The PFC report also collected limited information on riparian plant communities and other biological data.

Each inventoried stream was broken up into sections referred to as “reaches” that are generally a few miles long and contain similar stream conditions. Reach breaks were generally located at locations where the character of the stream changed. These breaks were often located where the stream valley confinement changed or where tributaries entered into a main channel. The SMP Update Report summarizes each shoreline reach for six general ecological topics: vegetation, soils, water movement, wildlife, fish, and water quality. These topics provide an overall summary of the ecological functions of each shoreline and identify which functions are healthy, which have been significantly altered or adversely impacted, and which functions may have previously existed but are now missing.

The Town of Rockford is within Rock Creek reach numbers 7 and 8. Most of the City is within river reach number 7, which consists of Urban Conservancy designation within City limits. This portion of the stream contains single family dwellings, vacant parcels, and agricultural uses. Outside of the town boundary, the urban designation transitions into pastoral with vacant, forested set-asides, and agricultural uses. Vegetation in this section of the reach is dominated by a narrow band of palustrine scrub-shrub on both banks. Occasional stands of common chokecherry and MacKenzie willow are scattered through the reach. Reed canary grass is well established along both banks and extends to the grazing lands. The soils at upper end of the reach consist of Caldwell silt loam which is a poorly drained soil that presents little or no hazard of erosion. Near the mid reach the soil type changed to a Bernhill very stony silt loam, which is well drained and consisted of stones derived from basalt bedrock. At the downstream end of the reach the soils change once again to Narcissi silt loam, which is a medium textured miscellaneous soil derived from

metamorphic bedrock upstream of this study area. The alluvial soil is moderately welldrained and moderately permeable on nearly level surfaces with slow runoff. Hazard of erosion is slight. This section of river has been rated as properly functioning condition. Recommended restoration strategies include: passive bioengineering, native plant enhancement, and buffer requirements.

2.2 HANGMAN CREEK TMDL

The Hangman Creek (also known as Latah Creek) watershed drains approximately 431,000 acres and spans across two states and four counties. More than 60 percent of the watershed resides in eastern Washington State (WRIA 56) while the remaining portion, including the headwaters, originates in the western foothills of the Rocky Mountains near Sanders, Idaho. The major tributaries to Hangman Creek are Marshall Creek; California Creek; Spangle Creek; Rock Creek; Rattler Run Creek; and the Little Hangman Creek.

Since 2004, the SCCD and Ecology have been studying the total maximum daily load (TMDL) for the Hangman Creek watershed. A TMDL, also known as a water quality improvement plan, is a common-sense, science-based approach to cleaning up polluted water so that it meets water quality standards. TMDLs established today also can help manage water quality on a watershed scale to prevent the loss of beneficial uses in the future. Beneficial uses can include irrigation, fishing, habitat, recreation (swimming, wading, and boating) and other uses.

Ecology and the SCCD are developing TMDLs because several parts of Hangman Creek were identified on the 1998 303(d) list of impaired waters for not meeting state water quality standards for fecal coliform, dissolved oxygen, pH, and temperature. In conversations with Elaine Snouwaert with Ecology's Water Quality Program, it appears that, out of all the TMDL factors, temperature is probably the most relevant to the SMP update. This is because the SMP regulates the removal of riparian vegetation and encourages the restoration of riparian vegetation along creeks, which shades the water and assists with temperature issues.

Water quality issues

Streams in the Hangman Creek Watershed currently do not meet Washington State's water quality standards for several reasons. Land use influences, (agriculture, impervious surfaces, timber harvest, roads, etc.) as well as stream channel and flood plain alterations over the last 100-years have contributed to "flashy" flow conditions, unstable stream banks, loss of riparian vegetation, and substandard water quality.

Streams in the Hangman Creek Watershed are impaired by excess fecal coliform, turbidity, and elevated water temperatures. Ecology and SCCD studied these water quality problems and developed TMDL report outlining the necessary pollutant reductions and an implementation strategy (Joy et.al, 2009). This water quality implementation plan expands on the recommendations in the TMDL and lays out the roles and responsibilities for addressing various water quality issues in the watershed. The TMDL study identifies pollution problems in the watershed, and then specifies how much pollution needs to be reduced or eliminated to achieve clean water.

The watershed contains ten permitted wastewater treatment plant (WWTP) facilities in Washington. Four of these facilities have state wastewater discharge permits to discharge to ground. The six remaining WWTPs have National Pollutant Discharge Elimination System (NPDES) permits to discharge to surface water.

This implementation plan outlines the issues that need to be addressed to bring the streams into compliance with water quality standards for bacteria, temperature and turbidity. Because of an interest in addressing phosphorus in the Spokane River, this plan also recommends activities to reduce nutrients. The 11 water quality issues that need to be addressed are:

- Issue 1: Sediment/nutrients from agricultural operations.
- Issue 2: Sediment/fecal coliform from livestock and wildlife.
- Issue 3: Nutrients/chemicals from residential uses.
- Issue 4: Sediment/nutrients from agricultural field ditches.
- Issue 5: Nutrients/fecal coliform from improperly functioning septic systems.
- Issue 6: Sediment from gravel and summer roads.
- Issue 7: Sediment from sheer or undercut banks.
- Issue 8: Sediment/fecal coliform from stormwater.
- Issue 9: Sediment from poor forestry management.
- Issue 10: Sediment from roadside ditching.
- Issue 11: Solar heating from lack of riparian shade.

The activities described in this plan to address these issues include:

- Converting conventional farming tillage practices to direct seed tillage.
- Implementing agricultural best management practices (BMPs) to reduce erosion.
- Enhancing and restoring riparian buffers.
- Managing livestock to prevent their waste from reaching streams.
- Maintaining and repairing failing septic systems.
- Streambank restoration projects.
- Following forest practice regulations when harvesting timber.
- Education about water quality issues and the activities to address them.

Many partners will need to work together to achieve the level of implementation necessary to meet the water quality goals of the TMDL water quality implementation plan. The SMP updates allow for water quality improvement opportunities within a separate portion of the Hangman Creek Watershed.

LOCAL CHARACTERISTICS

3.1 REGIONAL CHARACTERISTICS

The Hangman (Latah) Creek watershed, which includes Rock Creek, has an arid climate during the

summer months and a mild inter-coastal climate during the winter months. Within the Palouse region that contains Rockford, the creeks flow through rolling loess hills prior to entering basalt canyons and glacial outwash soils downstream to the north of the Rock Creek confluence (SCCD 2005). Agriculture is the dominant land use within the basin. The majority of agriculture is non-irrigated annual grass crops. This land use often encroaches well into the SMA jurisdiction to the edge of the existing streambanks. In addition, livestock are common in shoreline areas. Agricultural land use is present within the town of Rockford as well but with a greater density of commercial and residential development within and adjacent to the shoreline zone. Additionally, the creek shorelines have been modified within the Town for enhanced flood protection due to the nearby developments.

3.2 FIELD OBSERVATIONS

The Town of Rockford spans a 6,200-foot-long portion of Rock Creek between stream miles 13 and 14. The SMP jurisdiction includes approximately 55.9 acres of lands along the creek. The town contained 470 people in 2010 according to the most recent census. Within the town, Rock Creek receives three separate fish-bearing tributary streams and one non-fish bearing stream according to the Washington Department of Natural Resources (DNR) Water Type Base Map (DNR 2012).

Because the town lies at a relatively low elevation, much of it is located within the creek's floodplain near Emma Street. As a result, Rock Creek is heavily modified with flood protection levees through the center of town (Figures 4-A and 4-B). The levees shown on Figure 4-B were generated by the Spokane County inventory but they are, in fact, more extensive than what's shown. In conversations with local residents, the height of the bridge over Rock Creek on Emma Street (SR 278) is too low. At infrequent flood stages, the bridge becomes a constriction and the creek flows over the road and often floods portions of town east of the bridge. Sediment is periodically dredged from beneath the bridge to maintain a clear span. A photo of this constriction is provided in Appendix A (see Photo 13).

Land use within the shoreline jurisdiction is a mixture of vacant natural area, commercial, agricultural and residential. Most of the shoreline zone is privately owned with the exception of a few City-owned parcels. The levee south of Emma Street, along the right streambank, provides a pedestrian trail that appears to receive occasional use. Portions of town between 1st street (SR 278) and the creek appear to have the greatest potential for development. This area houses a country fair each year. Shorelines at the north end of town are used primarily for agriculture. Shorelines at the south end of town provide a mixture of pasture and residential uses.

The following shoreline condition describes the area beginning at the southern end of town and moving downstream (north).

Rock Creek splits as it enters town forming two distinct channels. In this area, the habitat conditions are in relatively good condition owing to a wide, active floodplain and pockets of mature ponderosa pine riparian forest. Evidence of livestock is common in this area. Moving north the channel becomes confined by steep rocky topography and the two channels rejoin into a single channel (near photo point no. 7 on Figure 4-A). North of the riparian forest patches (dominated by black hawthorns) at the south end of town

the channel becomes highly modified by flood protection levees, as seen in photo no. 9. A backwater wetland area is located along the left/west bank of the creek behind a low point in the levee. Shoreline conditions through the center of town are degraded and heavily dominated by a mixture of reed canarygrass and tansy. These shoreline conditions continue through town until the creek bends west north of the railroad bridge (Figure 4-B). After bending west the floodplain opens with an active, low floodplain terrace along the left/south bank of the creek. This area appears to contain a degraded wetland associated with a ditch. In general, the central, degraded portions of the town seem most appropriate for future shoreline development, especially along the right/east side of the creek. The natural areas at the northwest and southern ends of town seem most appropriate for habitat preservation and enhancement/restoration. Additionally, opportunities for floodplain wetland enhancement are present southeast of Church Street along the creek's west bank. In 2020, the town excavated the portion of the creek bed between the SR 278 bridge and the railroad bridge (photo no.13) This action was to alleviate future potential flooding. Eventually, flood protection may also require the rebuilding and raising of the SR 278 bridge on Emma Street.

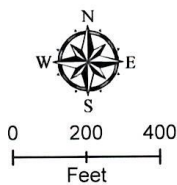
REFERENCES

- Joy, Joe, R. Noll, and E. Snouwaert. 1999. Hangman (Latah) Creek Watershed Fecal Coliform, Temperature, and Turbidity Total Maximum Daily Load, Water Quality Improvement Report. Department of Ecology Water Quality Program, Eastern Regional Office. Spokane, WA.
- Landau Associates. 2005. Report, Spokane County Shorelines Master Program update, Spokane County, Washington. February 1, 2005. Spokane, WA.
- Olson, P. and E. Stockdale. 2016 revised. Determining the Ordinary High Water Mark on Streams in Washington State. Second Review Draft. Washington State Department of Ecology (DOE), Shorelands & Environmental Assistance Program, Lacey, WA. Ecology Publication # 16-06-029.
- Spokane County Conservation District (SCCD). 2005. Spokane County Proper Functioning Condition Stream Inventory & Assessment. Spokane, WA.
- Washington State Department of Natural Resources (DNR). 2012. Water Typing Database. Accessed on May 1, 2021.



Legend

- Municipal Boundary
- SMP Jurisdiction
- Tax Parcels
- ① Photo Location & Direction (See Appendix A)



**FIGURE 4-A: TOWN OF ROCKFORD
SHORELINE INVENTORY (SOUTH PORTION)**

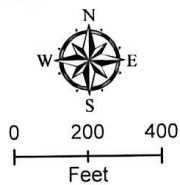
Shoreline Master Program Update
 Cities of Latah, Rockford, and Waverly
 Spokane County, Washington

October 3, 2012

URS



- Legend**
- Municipal Boundary
 - SMP Jurisdiction
 - Tax Parcels
 - Photo Location & Direction (See Appendix A)



**FIGURE 4-B: TOWN OF ROCKFORD
SHORELINE INVENTORY (NORTH PORTION)**

Shoreline Master Program Update
 Cities of Latah, Rockford, and Waverly
 Spokane County, Washington

October 3, 2012

URS

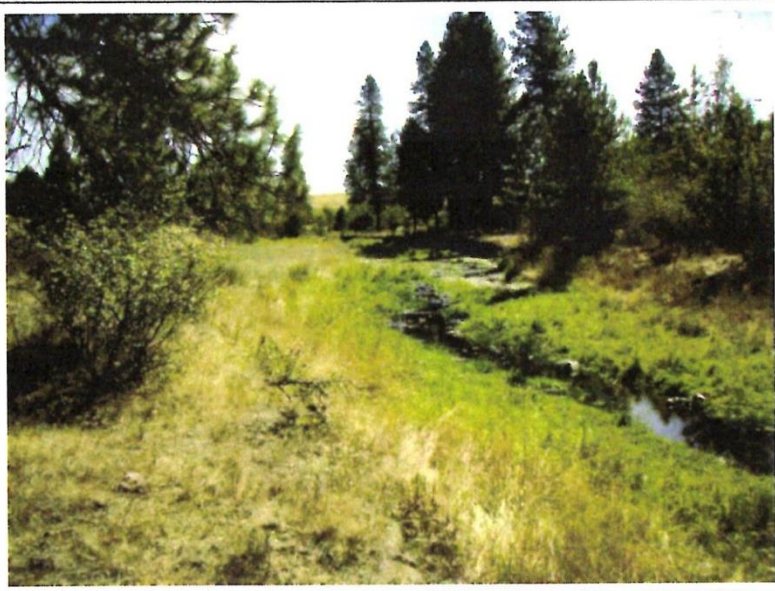
Photo No. 6	Date: 9/6/2012	
Direction Photo Taken: Southeast		
Description: Stream conditions at the south end of Rockford. This area is in relatively good condition. This is the northeastern of two stream channels north of where Rock Creek splits as it enters town from the south		


Photo No. 7	Date: 9/6/2012	
Direction Photo Taken: Southeast		
Description: This is the second stream channel through the south end of town. This channel is intermittent.		


Photo No. 8	Date: 9/6/2012	
Direction Photo Taken: Southwest		
Description: Conditions within a stand of Ponderosa pine near the south end of town. The stand is located on a terrace above the active channel margin		

Photo No. 9	Date: 9/6/2012
Direction Photo Taken: North	
Description: Active floodplain along the right/east bank of Rock Creek. In this location the creek is heavily dominated by invasive, herbaceous vegetation. This area lacks shade-producing vegetation.	



Photo No. 10	Date: 9/6/2012
Direction Photo Taken: Northeast	
Description: Photo looks up a tributary of Rock Creek that flows in a trapezoidal channel through town. The tributary has steep banks that are covered with a monoculture of reed canarygrass. A historical brick building is visible next to the creek. This building shows evidence of flooding along its base.	



Photo No. 11	Date: 9/6/2012	
Direction Photo Taken: Northwest		
Description: Typical conditions along the levee through town.		


Photo No. 12	Date: 9/6/2012	
Direction Photo Taken: Southeast		
Description: A large wetland area is located between the levee along Rock Creek's left bank and the fill terrace to the west. According to locals, this area was once excavated to create an ice-skating pond. Water floods the area through a low spot in the levee during seasonal high stream flow events.		



Photo No. 13	Date: 9/6/2012	
Direction Photo Taken: Southeast		
Description: Overview of the creek where it is both confined by the visible levees and constricted by the Emma Street Bridge (at far end of photo). This photo taken from the railroad bridge. An intermittent tributary enters Rock Creek just north of this location, which is the reason for the broad, low floodplain around the confluence of these two streams.		

Photo No. 14	Date: 9/6/2012	
Direction Photo Taken: West		
Description: Wetland floodplain area along the left/south bank of the creek as it exits Rockford's municipal boundary.		